

# NATIONAL TRANSPORTATION SAFETY BOARD

Vehicle Recorder Division  
Washington, DC 20594

June 20, 2018

## Onboard Image Recorder

Specialist's Factual Report  
By Sean Payne

### 1. EVENT

Location: Crozet, Virginia  
Date: January 31, 2018  
Train: Locomotive 145, Train 923 (Lead)  
Operator: Amtrak  
NTSB Number: HWY18MH005

### 2. GROUP

A group was not convened.

### 3. SUMMARY

For a description of this event, refer to *Crash Summary*, which can be found in the public docket for this accident.

### 4. DETAILS OF INVESTIGATION

On February 2, 2018, the National Transportation Safety Board (NTSB) Vehicle Recorder Division received the following track image recorder:

Recorder Manufacturer/Model: **Wabtec Silver SSD Enclosure**  
Recorder Serial Number: **MS1022A961**

#### 4.1. Recorder Description

The Wabtec Traintrax track image recorder (TIR) hard drive is connected to a camera pointing along the longitudinal axis of the locomotive. It records video at a resolution of 704x480 pixels and 15 frames per second. External audio is also recorded. Some versions will also record GPS position and speed. The recorder is not protected from impact or fire.

#### 4.2. Recorder Damage

Upon arrival at the NTSB Vehicle Recorder Division, it was evident that the track image recorder had not sustained any heat or structural damage and the video and audio information was extracted from the device normally, without difficulty.

### **4.3. Video Files**

A selected portion of video was extracted from the device. The selected portion began at 10:59:41 A.M. on January 31, 2018, and lasted about 45 minutes.

### **4.4. Timing and Correlation**

The times used in this report are expressed as Local Time of the accident (EST).

The time the train came to a stop was compared to data from the train's event data recorders. Since the lead locomotive (#145) derailed, speed information was compared to the trailing locomotive's data recorder (#4). Event data for Amtrak 4 showed the locomotive came to a stop at 11:16:58 A.M. EST. The time of the track image recorder was determined to be behind EST by 14,381 seconds. The following formula was used to adjust the time of the track image recorder to that of the event data recorder from Amtrak #4.

$$\text{Track Image Recorder} + 14,381 \text{ Seconds} = \text{EST}$$

For details regarding the time correlation of Amtrak 4 and Amtrak 145 to EST, refer to the Event Recorder Factual Report which is available in the public docket for this accident.

### **4.5. Summary of Recording Contents**

In agreement with the Investigator-In-Charge, a video group did not convene and a summary report was prepared.

The recording began around 10:59:41 AM on Wednesday, January 31, 2018. During the recording, and prior to the incident grade crossing, the train passed eight vehicular grade crossings, not including the grade crossing at which the accident occurred. The train's horn was audible multiple times and through each grade crossing.

Around 11:16:19, the train was rounding a curve and the horn was audible. Figure 1 is a screenshot from this time

**Figure 1. The train at 11:16:19, when it was rounding a curve and the horn was audible.**



Around 11:16:26, the train was passing a smaller grade crossing (8<sup>th</sup> grade crossing since the start of the recording) and a white object came into the camera's view beyond a line of trees around the oncoming curve. The horn was almost continually audible as the train approached this grade crossing. Figure 2 is a screenshot at this time.

**Figure 2. The train at 11:16:26, when a white object came into view.**



The horn was continuously audible through the time of impact. Figure 3 is a screenshot captured at 11:16:33 when the white object clearly appeared to be a garbage truck. The garbage truck was beyond the crossing gate (crossing gate on the right side of the track as viewed from the locomotive). The lights on the crossing gate were flashing.

**Figure 3. The train at 11:16:33 when the garbage truck was clearly visible.**



Two seconds later, at 11:16:35, the garbage truck appeared to stop on the grade crossing (9<sup>th</sup> grade crossing since the start of the recording). The lights on the crossing gate were flashing and the crossing gate on the right of the track was clearly down.

The horn continued to be audible. Figure 4 is a screenshot captured at 11:16:37, with the garbage truck stopped on the grade crossing.

**Figure 4. The train at 11:16:37 showing the garbage truck stopped on the grade crossing.**



Figure 5 shows the moment of impact at 11:16:38, with the horn continuously audible.

Figure 5. Impact at 11:16:38.



The train came to a stop at 11:16:58. The horn was still audible. The horn remained audible after the train had stopped until around 11:17:13 when it ceased to be audible. The bell was then audible for some time. The remainder of the recording was unremarkable.